

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No.: 09/851,164
Attorney Docket No.: Q63442

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Original): A method of correcting the color of a print medium, comprising the steps of:

converting device-dependent image data to first colorimetric data with color converting means given to a standard print medium;

thereafter, converting said first colorimetric data to second colorimetric data with color correcting means to correct the difference between the color of a desired print medium and the color of said standard print medium; and

producing a proof on which the difference between the color of said desired print medium and the color of said standard print medium has been corrected, on a proof medium

~~with an image output device based on said second colorimetric data;~~

wherein said color correcting means comprises one-dimensional lookup tables for converting said first colorimetric data to said second colorimetric data.

2. (Original): A method of correcting the color of a print medium, comprising the steps of:

converting device-dependent image data, which have been converted in gradation with respect to each color in order to match desired printing conditions by gradation converting

means; to first colorimetric data with color converting means corresponding to standard printing conditions given to a standard print medium;

thereafter, converting said first colorimetric data to second colorimetric data with color correcting means to correct the difference between the color of a desired print medium and the color of said standard print medium; and

producing a proof on which the difference between the color of said desired print medium and the color of said standard print medium has been corrected, on a proof medium with an image output device based on said second colorimetric data.

3. (Original): A method according to claim 1, wherein said color correcting means is generated by outputting color patches, whose colorimetric values are varied in a colorimetric color space about the color of the standard print medium, with said image output device, and comparing the color of the desired print medium with the colors of the color patches on the proof medium.

4. (Original): A method according to claim 2, wherein said color correcting means is generated by outputting color patches, whose colorimetric values are varied in a colorimetric color space about the color of the standard print medium, with said image output device, and comparing the color of the desired print medium with the colors of the color patches on the proof medium.

5. (Original): A method according to claim 3, wherein said color patches outputted on said proof medium comprise color patches whose colorimetric values $L^*a^*b^*$ are varied in a CIELAB color space about the color of said standard print medium.

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6. (Original): A method according to claim 4, wherein said color patches outputted on said proof medium comprise color patches whose colorimetric values $L^*a^*b^*$ are varied in a CIELAB color space about the color of said standard print medium.

7. (Original): An apparatus for correcting the color of a print medium, comprising:
color converting means given to a standard print medium, for converting device-dependent image data to first colorimetric data;

color correcting means for converting said first colorimetric data to second colorimetric data to correct the difference between the color of a desired print medium and the color of said standard print medium; and

an image output device for producing a proof on which the difference between the color of said desired print medium and the color of said standard print medium has been corrected, on a proof medium based on said second colorimetric data;

wherein said color correcting means comprises one-dimensional lookup tables for converting said first colorimetric data to said second colorimetric data.

8. (Original): An apparatus for correcting the color of a print medium, comprising:
gradation converting means for converting the gradation of device-dependent image data with respect to each color in order to match desired printing conditions;

color converting means corresponding to standard printing conditions given to a standard print medium, for converting the gradation-converted device-dependent image data to first colorimetric data;

color correcting means for converting said first colorimetric data to second colorimetric data to correct the difference between the color of a desired print medium and the color of said standard print medium; and

an image output device for producing a proof on which the difference between the color of said desired print medium and the color of said standard print medium has been corrected, on a proof medium based on said second colorimetric data.

9. (Original): An apparatus according to claim 7, wherein said color correcting means is generated by outputting color patches, whose colorimetric values are varied in a colorimetric color space about the color of the standard print medium, with said image output device, and comparing the color of the desired print medium with the colors of the color patches on the proof medium.

10. (Original): An apparatus according to claim 8, wherein said color correcting means is generated by outputting color patches, whose colorimetric values are varied in a colorimetric color space about the color of the standard print medium, with said image output device, and comparing the color of the desired print medium with the colors of the color patches on the proof medium.

11. (Original): An apparatus according to claim 9, wherein said color patches outputted on said proof medium comprise color patches whose colorimetric values $L^*a^*b^*$ are varied in a CIELAB color space about the color of said standard print medium.

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12. (Original): An apparatus according to claim 10, wherein said color patches outputted on said proof medium comprise color patches whose colorimetric values $L^*a^*b^*$ are varied in a CIELAB color space about the color of said standard print medium.

13. (Previously Presented): A proofer for generating a color proof on a proof print medium having color different from the color of a desired print medium, comprising:

a color adjusting device for adjusting the difference between the color of said desired print medium and the color of a standard print medium, wherein said color adjusting device comprises one-dimensional lookup tables for converting the color of a standard print medium to the color of said desired print medium; and

an output device generating the color proof based on results of the color adjusting device.

14. (Previously Presented): A proofer according to claim 13, wherein said proofer outputs said proof medium having color patches whose colors are varied, and said color adjusting device adjusts color by visually comparing the color of said desired print medium with the colors of said color patches on said proof medium.

15. (Previously Presented): A proofer according to claim 13, wherein said color adjusting device adjusts color by using a colorimetric data which is determined by colorimetrically measuring the color of said desired print medium with a colorimeter.

16. (Previously Presented): A proofer according to claim 13, further comprising a printing profile, wherein said color adjusting device adjusts color by a color converting means behind said printing profile.

17. (Original): A proofer according to claim 13, further comprising a synthetic color converting means at least combining a printing profile, a color converter for adjusting color, and a printer profile, for correcting color.

18. (Original): A method of correcting the color of a print medium, comprising the steps of:

converting device-dependent image data to first colorimetric data with color converting means given to a standard print medium;

thereafter, converting said first colorimetric data to second colorimetric data with color correcting means to correct the difference between the color of a desired print medium and the color of said standard print medium; and

producing a proof on which the difference between the color of said desired print medium and the color of said standard print medium has been corrected, on a proof medium with an image output device based on said second colorimetric data;

wherein the color correcting means corrects the data based on the ratios of $X\alpha/X0$, $Y\alpha/Y0$ and $Z\alpha/Z0$, where $X\alpha$, $Y\alpha$ and $Z\alpha$ are second colorimetric data values and $X0$, $Y0$ and $Z0$ are first colorimetric data values for which the difference between the color of a desired print medium and the color of said standard print medium has been corrected.

19. (Original): A method according to claim 18, wherein said color correcting means is generated by outputting color patches, whose colorimetric values are varied in a colorimetric color space about the color of the standard print medium, with said image output device, and

comparing the color of the desired print medium with the colors of the color patches on the proof medium.

20. (Original): A method according to claim 19, wherein said color patches outputted on said proof medium comprise color patches whose colorimetric values $L^*a^*b^*$ are varied in a CIELAB color space about the color of said standard print medium.

21. (Original): An apparatus for correcting the color of a print medium, comprising:
color converting means given to a standard print medium, for converting device-dependent image data to first colorimetric data;

color correcting means for converting said first colorimetric data to second colorimetric data to correct the difference between the color of a desired print medium and the color of said standard print medium; and

an image output device for producing a proof on which the difference between the color of said desired print medium and the color of said standard print medium has been corrected, on a proof medium based on said second colorimetric data;

wherein the color correcting means corrects the data based on the ratios of $X\alpha/X0$, $Y\alpha/Y0$ and $Z\alpha/Z0$, where $X\alpha$, $Y\alpha$ and $Z\alpha$ are second colorimetric data values and $X0$, $Y0$ and $Z0$ are first colorimetric data values for which the difference between the color of a desired print medium and the color of said standard print medium has been corrected.

22. (Original): An apparatus according to claim 21, wherein said color correcting means is generated by outputting color patches, whose colorimetric values are varied in a colorimetric color space about the color of the standard print medium, with said image output

device, and comparing the color of the desired print medium with the colors of the color patches on the proof medium.

23. (Original): An apparatus according to claim 22, wherein said color patches outputted on said proof medium comprise color patches whose colorimetric values $L^*a^*b^*$ are varied in a CIELAB color space about the color of said standard print medium.

24. (Previously Presented): A proofer for generating a color proof on a proof print medium having color different from the color of a desired print medium comprising:

a color adjusting device for adjusting the difference between the color of said desired print medium and the color of a standard print medium, wherein the color adjusting device adjusts color proof data based on the ratios of $X\alpha/X0$, $Y\alpha/Y0$ and $Z\alpha/Z0$, where $X\alpha$, $Y\alpha$ and $Z\alpha$ are colorimetric data values for producing a proper color on said desired print medium and $X0$, $Y0$ and $Z0$ are colorimetric data values producing the proper color on said standard print medium, and

~~an output device generating the color-proof based on an output of the color adjusting~~
device.

25. (Previously Presented): A proofer according to claim 24, wherein said proofer outputs said proof medium having color patches whose colors are varied, and said color adjusting device adjusts color by visually comparing the color of said desired print medium with the colors of said color patches on said proof medium.

26. (Previously Presented): A proofer according to claim 24, wherein said color adjusting device adjusts color by using a colorimetric data which is determined by colorimetrically measuring the color of said desired print medium with a colorimeter.

27. (Previously Presented): A proofer according to claim 24, further comprising a printing profile, wherein said color adjusting device adjusts color by a color converting means behind said printing profile.

28. (Original): A proofer according to claim 24, further comprising a synthetic color converting means at least combining a printing profile, a color converter for adjusting color, and a printer profile, for correcting color.

29. (Original): The method of claim 3, wherein a color of a central color patch is the same as a color of the standard print medium.

30. (Original): The method of claim 29, wherein the color patches comprise three-dimensional colorimetric values of $L^*a^*b^*$ and color patches are arranged as a^*-b^* planes in respective cross sections of different L^* -axes values.

31. (Original): The method of claim 30, wherein each color patch is assigned an integer as a relative position from the central color patch according to each axis of $L^*a^*b^*$ for showing increment/decrement intervals of a colorimetric value and the color of the desired print medium is compared with the color patches, and wherein when no color patch is the same as the color of the desired print medium, a value between two closest color patches which is close to the color of the desired print medium is described as a real number to describe a colorimetric value of the desired print medium.

32. (Original): The method of claim 31, wherein a color difference ΔE in adjacent color patches on each axis of $L^*a^*b^*$ has value between 1.5 and 2.0, inclusive.

33. (Original): The method of claim 4, wherein a color of a central color patch is the same as a color of the standard print medium.

34. (Original): The method of claim 33, wherein the color patches comprise three-dimensional colorimetric values of $L^*a^*b^*$ and color patches are arranged as a^*-b^* planes in respective cross sections of different L^* -axes values.

35. (Original): The method of claim 34, wherein each color patch is assigned an integer as a relative position from the central color patch according to each axis of $L^*a^*b^*$ for showing increment/decrement intervals of a colorimetric value and the color of the desired print medium is compared with the color patches, and wherein when no color patch is the same as the color of the desired print medium, a value between two closest color patches which is close to the color of the desired print medium is described as a real number to describe a colorimetric value of the desired print medium.

36. (Original): The method of claim 35, wherein a color difference ΔE in adjacent color patches on each axis of $L^*a^*b^*$ has value between 1.5 and 2.0, inclusive.

37. (Previously Presented): The apparatus of claim 9, wherein a color of a central color patch is the same as a color of the standard print medium.

38. (Previously Presented): The apparatus of claim 37, wherein the color patches comprise three-dimensional colorimetric values of $L^*a^*b^*$ and color patches are arranged as a^*-b^* planes in respective cross sections of different L^* -axes values.

39. (Previously Presented): The apparatus of claim 38, wherein each color patch is assigned an integer as a relative position from the central color patch according to each axis of $L^*a^*b^*$ for showing increment/decrement intervals of a colorimetric value and the color of the desired print medium is compared with the color patches, and wherein when no color patch is the same as the color of the desired print medium, a value between two closest color patches which is close to the color of the desired print medium is described as a real number to describe a colorimetric value of the desired print medium.

40. (Previously Presented): The apparatus of claim 39, wherein a color difference ΔE in adjacent color patches on each axis of $L^*a^*b^*$ has value between 1.5 and 2.0, inclusive.

41. (Previously Presented): The apparatus of claim 10, wherein a color of a central color patch is the same as a color of the standard print medium.

42. (Previously Presented): The apparatus of claim 41, wherein the color patches comprise three-dimensional colorimetric values of $L^*a^*b^*$ and color patches are arranged as a^*-b^* planes in respective cross sections of different L^* -axes values.

43. (Previously Presented): The apparatus of claim 42, wherein each color patch is assigned an integer as a relative position from the central color patch according to each axis of $L^*a^*b^*$ for showing increment/decrement intervals of a colorimetric value and the color of the desired print medium is compared with the color patches, and wherein when no color patch is the same as the color of the desired print medium, a value between two closest color patches which is close to the color of the desired print medium is described as a real number to describe a colorimetric value of the desired print medium.

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44. (Previously Presented): The apparatus of claim 43, wherein a color difference ΔE in adjacent color patches on each axis of $L^*a^*b^*$ has value between 1.5 and 2.0, inclusive.

45. (New): The method of claim 1, wherein the first and second colorimetric data each comprise device-independent color spaces.

46. (New): The method of claim 2, wherein the first and second colorimetric data each comprise device-independent color spaces.

47. (New): The apparatus of claim 7, wherein the first and second colorimetric data each comprise device-independent color spaces.

48. (New) The apparatus of claim 8, wherein the first and second colorimetric data each comprise device-independent color spaces.

49. (New): The proofer of claim 13, wherein the color of a standard print medium is represented as a first device - independent color space and the color of the desired print medium represents a conversion of data of said first device - independent space.